a strict meat diet; in the latter sugar was found in great quantity in the urine after sulphonal had been suspended.

In the same cases antipyrine was tried before sulphonal, but the effect produced by antipyrine was less marked than that by sulphonal.—*Medicinische-Chirurgische Rundschau,* Heft 20, 1890.

MEDICINE.

UNDER THE CHARGE OF

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THE SECRETION OF HYDROCHLORIC ACID IN THE STOMACH DURING DIGESTION.

V. JAKSCH (*Zeitschr. f. klin. Med.*, B. 17, H. 5, 383) has devoted his attention to the determination of the exact amount of hydrochloric acid present during different periods of digestion. He describes the method of analysis which he employs, and which consists in a modification of that of Sjogvist's. This is a gravimetric method, in which the hydrochloric acid is caused to unite with barium, and the barium then recovered in the form of the sulphate and weighed.

A series of experiments were performed on each of a number of children who presented no disturbances of digestion. A definite amount of nourishment was administered in the morning on an empty stomach, and the contents of the stomach later removed by the method of expression after the lapse of intervals of time varying one-quarter of an hour in the different experiments. The amount of hydrochloric acid present in 10 c. c. of the unfiltered gastric contents was in each instance determined; the author having found that the filtered contents lost considerably in the amount of acid. He details his observations proving this loss.

Series of observations were made by administering respectively boiled ham, boiled milk, and purely hydrocarbonaceous food. All the experiments are reported in full.

The principal results of these studies are the following:

1. Within one-quarter of an hour after the administration of nourishment the stomach has produced an appreciable quantity of hydrochloric acid, and this amount increases until it reaches its maximum from one to three hours after food is taken.

2. The secretion of the acid does not constantly increase, but may, after one and a quarter to two hours, show intermissions.

3. The amount secreted increases most rapidly after the ingestion of flesh; more slowly after milk. This is doubtless due to the property milk has of forming compounds with hydrochloric acid; and this fact also explains the

small amount of free acid found in the stomach of nursing children. The amount of acid increases most slowly after the ingestion of hydrocarbons, though its increase during the first quarter of an hour is most rapid after this form of food.

4. The highest average amount of acid in the gastric excretion was found after a milk diet, and equalled 0.1615 gramme in 100 c.c. gastric contents. After a flesh diet the average amount equalled 0.1563, and after hydrocarbons 0.1102.

5. Digestion appeared to be more rapidly completed after the ingestion of small amounts of flesh; next rapidly after hydrocarbons, and least so after milk.

The author points out how these results may be of value as regards both the physiology and pathology of digestion. From the last point of view he considers that the absence of free acid after one to three hours after flesh or milk has been eaten renders it very probable that there exists some severe disturbance of the gastric function; while no such conclusion can be positively drawn after a diet of carbohydrates. Further, that large amounts of free hydrochloric acid found as long as two to three hours after eating flesh or milk do not indicate a hypersecretion. A milk diet is not to be recommended in the pursuit of studies upon digestion.

In a second part of the author's article he has endeavored to determine the relative sensitiveness of some of the different color-tests for free acid in the gastric secretion. It appears that Congo paper and benzopurpurin have about the same value, but that the Günzburg reaction is by far the most delicate of all the color-tests. All of them are, however, inexact, and not reliable for scientific purposes.

Still a third series of experiments was carried out to determine the amount of hydrochloric acid secreted by sick children under different conditions.

The most important results were:

1. That the quantity of acid found one hour after the ingestion of nitrogenous food depends upon the age and weight of the child.

2. That great variations are witnessed under pathological conditions, but that catarrhal conditions of the stomach, dyspepsia, etc., lead to a diminution in the acid secretion.

The author also tested the value of the administration of weak tea and saccharin as an excitant to gastric secretion, but found that, although hydrochloric acid could usually be detected after three-quarters of an hour, yet it was sometimes entirely absent, and was always much less than after the ingestion of nourishing substances.

THE DIAGNOSIS OF ABSCESS OF THE LIVER.

PEL (*Berlin. Klin. Wochenschr.*, 1890, 34, 765) read a paper on this subject before the International Medical Congress, in which he gives the result of his observations on twenty-five cases of solitary liver abscess, of size sufficient to admit of a diagnosis being made during life. Only one of these occurred in a woman.

In many cases an abscess of the liver cannot be detected, either because it produces no symptoms whatever, or because it is too small or too centrally situated to be recognized with any certainty.

The clinical diagnosis of an abscess of the liver depends principally on three factors: 1. Objective symptoms. 2. Subjective symptoms. 3. The etiology.

Of the *objective symptoms*, the enlargement of the liver is a sign never absent in cases capable of being diagnosticated. Yet this enlargement has three characteristic peculiarities which, together, are of almost pathognomonic significance: (*a*) The liver is enlarged chiefly in an upward direction, so that the right lobe pushes the diaphragm upward into the right thoracic cavity. Enlargement of the liver downward and to the left, though usually present also, has but little diagnostic significance. (*b*) The second peculiarity, the more or less, though usually slight, convex form of the upper line of liver-dulness, is a very valuable sign of liver abscess. This convexity may occur at any part of the perimeter of this boundary. (*c*) A third characteristic of the enlargement is that the hepatic-pulmonary percussion boundary which has been displaced upward, and which should in normal conditions be movable through respiration or by lying on the side, is now very little or not at all so. This sign should be looked for very carefully in order to distinguish abscess from a hyperplastic or pseudo-leukæmic liver. This lack of motion is due partly to the formation of adhesions, partly to the fact that the right half of the diaphragm moves less on account of pain, and partly to the resistance which the suspensory ligaments offer to the depression of the organ.

Frequently, with the high position of the diaphragm, there are also present the symptoms of compression or relaxation of the lungs, and care must be taken not to suppose a liver abscess to be a pleural effusion.

Several other objective symptoms may be noticed on inspection. A not inconsiderable distention of the right hypochondrium and the hepatic region, with diminished motion on respiration and widened intercostal spaces, occurring in a man of cachectic appearance and of middle age arouses the suspicion that there exists a collection of pus in the liver. When collateral œdema or a fluctuating tumor is also to be felt in the intercostal spaces or in the epigastrium, no one can fail of a diagnosis.

Further objective symptoms are the suffering, apathetic appearance of the patient, who is evidently very ill; the dull eye, weak pulse, anæmic murmurs, hectic fever. The feet are not infrequently œdematous.

Very considerable dyspnœa increasing on exercise, cough with or without expectoration, and pain and a sense of tension in the side are rarely absent. If in addition to these there is a phthisical habitus and history, and particularly if there is also some slight alteration in one apex, one may be led to make the mistaken diagnosis of tuberculosis. The author has seen the bloody expectoration, occurring after the rupture of a liver abscess into the lungs, mistaken for the hæmoptysis of pulmonary disease.

Icterus was observed in none of the author's cases.

Of the *subjective symptoms*, the pain already referred to may be mentioned as the most constant. It occurs in the hepatic region or in the back, or sometimes in the breast or gastric region, and it often radiates toward the posterior aspect of the right shoulder. It is increased by pressure, and in the latter stages of the disease is very severe.

Finally, the *etiology* is to be considered. The fact that the patient has suffered from tropical dysentery, or even that he has lived in warm climates, may give occasion to the development of an hepatic abscess. Of the cases occurring in temperate regions there may be various etiological factors, such as gall-stone, inflammation in the region of the portal vein, suppuration of echinococcus cysts, metastatic suppuration of the liver, and trauma. But in eight of the author's cases no cause at all could be found.

As regards differential diagnosis, the affection is most frequently confounded with tuberculosis. It must also be distinguished from malaria, pseudo-leukæmic infiltration of the liver, biliary colic with subsequent intermittent fever, syphilis of the liver with or without the formation of gummata, soft neoplasms, deeply situated phlegmonous inflammation of the abdominal walls, encysted pleural effusions, and sub-diaphragmatic collections of pus.

It is especially difficult to determine whether a collection of pus is in the convex portion of the liver or between the liver and the diaphragm, or is an encysted empyema. It is to be noted, in this connection—1, that sub-phrenic abscess almost always gives physical evidences of containing air; 2, that in the case of circumscribed empyema on the anterior surface of the thoracic cavity the heart is almost always dislocated toward the left, and the dulness of the two is continuous.

SURGERY.

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SURGICAL TUBERCULOSIS TREATED BY KOCH'S METHOD.

The statement has been frequently made that, in spite of the fact that cases have been treated by Koch's method for many weeks, there are as yet no instances of complete cure. BAUM (*Deut. med. Zeit.*, No. 103, 1890) records two cases which he considers to have been definitely and permanently cured by injection. The first, aged twenty-two years, suffered eighteen years from lupus of the right hand and of the fingers. The disease was extensive and accompanied by much scarring. On the 25th of November 0.008 grm. was injected. The general reaction was very slight. There was, however, marked local reaction. Four days later 0.01 grm. of the remedy was given; this was followed by the characteristic reaction. On the 5th of December, 0.015 grm. was injected. On the 13th of December the whole ulcerating area was entirely healed.